

DOCKET FILE COPY ORIGINAL

ORIGINAL

BEFORE THE

Federal Communications Commission

RECEIVED

WASHINGTON, D.C. 20554

JUL 30 1993

In the Matter of

Replacement of Part 90 by Part 88
to Revise the Private Land Mobile
Radio Services and Modify the
Policies Governing Them

)
)
)
)
)
)

PR Docket No. 92-235

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

**REPLY COMMENTS OF THE COALITION
OF INDUSTRIAL AND LAND
TRANSPORTATION RADIO USERS**

MANUFACTURERS RADIO FREQUENCY
ADVISORY COMMITTEE, INC.

FOREST INDUSTRIES
TELECOMMUNICATIONS

William K. Keane
Winston & Strawn
1400 L Street, N.W.
Washington, D.C. 20005-3502
(202) 371-5700
Its Attorney

James H. Baker
Its Executive Vice
President
871 Country Club Road
Suite A
Eugene, OR 97401
(503) 485-8441

AMERICAN TRUCKING ASSOCIATIONS,
INC.

George Petrutsas
Fletcher, Heald & Hildreth
1300 N. 17th St./11th Fl.
Rosslyn, VA 22209
(703) 812-0400
Its Attorney

Kenneth Siegel, Esquire
Legal Department
2200 Mill Road
Alexandria, VA 22314
Its Attorney

INTERNATIONAL TAXICAB AND LIVERY
ASSOCIATION

William K. Keane
Winston & Strawn
1400 L Street, N.W.
Washington, D.C. 20005-3502
(202) 371-5700
Its Attorney

Date: July 30, 1993

No. of Copies rec'd
List A B C D E

2414

TABLE OF CONTENTS

	<u>Page</u>
SUMMARY.....	i
REPLY COMMENTS OF THE COALITION OF INDUSTRIAL AND LAND TRANSPORTATION RADIO USERS.....	1
I. CONSOLIDATION.....	2
II. FREQUENCY ASSIGNMENT AND COORDINATION.....	5
III. MIGRATION TO NARROWBAND TECHNOLOGIES.....	6
IV. HEIGHT/POWER LIMITS.....	11
V. FREQUENCY ASSIGNMENT POLICIES.....	13
(a) Exclusivity.....	13
(b) "Stacking" narrow channels.....	14
VI. 72-76 MHZ BAND.....	15
VII. INNOVATIVE SHARED OPERATIONS.....	17
VIII. OTHER MATTERS.....	17
IX. CONCLUSION.....	18

SUMMARY

While a wide range of views have been expressed on the Commission's proposals in this proceeding in the large volume of the comments and during the informal conferences conducted by the Private Radio Bureau, it is clear that overwhelmingly land mobile users and the land mobile equipment manufacturing industry would like to see the Commission proceed with the re-farming program but on a different path. The Consensus Plan offered by the Land Mobile Communications Council is indeed a "consensus plan" and it was overwhelmingly supported.

The Coalition recommends adoption of LMCC's approach. For the VHF band, the Coalition recommends adoption of LMCC's approach but under Option B.

With very few exceptions, the comments overwhelmingly opposed the Commission's proposal to "consolidate" out of existence the current land mobile radio service and coordination structure, and many have offered reasonable alternatives. The Coalition continues to believe that re-grouping the current services into the six compatible service groups the Coalition has suggested would accommodate the Commission's desire to reduce the number of radio services and would maintain a substantial degree of user compatibility. The Coalition also believes that the groups it has suggested -- Public Safety, Land Transportation, Industrial/Utilities, Special Industrial, Business, and SMR, would be acceptable to the land mobile community.

The comments also overwhelmingly supported LMCC's alternative

recommendations for antenna height/power limits and for co-channel separations. The LMCC recommendations were supported because they reflect more realistically than the Commission's proposal the coverage requirements of land mobile users. The Coalition urges the Commission to adopt LMCC's recommendations.

The EUO program was also supported, but the comments, again overwhelmingly, urged that it, too, must be changed substantially to reflect the realistic coverage requirements of land mobile users. The program should be changed substantially and should be adopted as changed.

Finally, the Coalition believes that the comments have shown that the 72-76 MHz band has its own unique problems and opportunities and that any "re-farming" of that band should be a separate undertaking. Therefore, action concerning the 72-76 MHz should be deferred. The 25-50 MHz band should also be excluded.

RECEIVED

JUL 30 1993

BEFORE THE

Federal Communications Commission

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

WASHINGTON, D.C. 20554

In the Matter of

Replacement of Part 90 by Part 88
to Revise the Private Land Mobile
Radio Services and Modify the
Policies Governing Them

)
)
)
)
)
)

PR Docket No. 92-235

TO: The Commission

**REPLY COMMENTS OF THE COALITION
OF INDUSTRIAL AND LAND
TRANSPORTATION RADIO USERS**

The Coalition of Industrial and Land Transportation Radio Users (the "Coalition") hereby submits its Reply Comments with respect to certain of the filings made in this proceeding.¹

In its opening comments herein the Coalition noted its support for the goal of improving spectrum capacity in the bands below 512 MHz. At the same time, however, the Coalition expressed opposition to some of the specific proposals made in the Notice of Proposed Rulemaking. These include the proposed plan for migration to narrowband channels, the limitations proposed for height and power, exclusive use overlay and consolidation. Among other things, the Coalition urged a more graceful transition period for narrowbanding; supported the height-power proposals offered by the Land Mobile Communications Council ("LMCC") of which the Coalition members are a part; suggested that other factors besides loading alone govern eligibility for exclusive use; and maintained that

¹ The Coalition's members are: Manufacturers Radio Frequency Advisory Committee, Inc.; American Trucking Associations, Inc.; Forest Industries Telecommunications; and International Taxicab and Livery Association.

consolidation as proposed in the Notice of Proposed Rulemaking would cause disruption and interference. These points are discussed further below.

I. CONSOLIDATION

In its opening comments the Coalition strongly opposed consolidation as proposed in the Notice. Among other things the Coalition stressed the importance of compatibility between and among users of shared channels, and the value of user representative coordinating agencies in facilitating the introduction of new technologies below 512 MHz. At the same time, however, the Coalition urged that consolidation can be achieved without jeopardizing these values. Accordingly, the Coalition recommended a consolidation plan which honors existing sharing/operational patterns by pooling Services which historically have shared frequencies compatibly with each other; the frequencies allocated to such services are also generically contiguous. The Coalition stressed that this represents an objective criterion which would minimize operational disruption. See Coalition Comments at 13-16; see also Comments of Weyerhaeuser Company at 4.

In particular the Coalition urged a consolidation plan which would place its members in pools with other Services with which they naturally belong: Manufacturers and Forest with Power, Petroleum and Telephone Maintenance in an Industrial/Utilities Radio Service; and Truckers (Motor Carrier) and Taxicab in the Land Transportation Radio Service. The Coalition continues to urge

approval of this plan.

Opening comments by other parties reflect substantial agreement with the Coalition's general approach. For example, Utilities Telecommunications Council ("UTC") suggests that "the most rational and manageable approach is to consolidate radio services based on historical channel sharing and where consolidation will lead to radio pools having contiguous blocks of spectrum. . . ." Id. at 9. Consolidation based on the neutral principle referenced above not only minimizes disruption, but also preserves representativeness while introducing competition to the frequency coordination process. UTC thus suggested, for example, formation of a "Public Service Industrial" pool which could include the Power, Petroleum, Forest Products, Manufacturers and Telephone Maintenance radio services. Id. at 9-10.²

Among independent frequency coordinators, only Industrial Telecommunications Association ("ITA") supports the proposal in the Notice for three very broad pools plus a fourth catch-all category.³ While ITA's organization of the pools differs slightly from that of the Commission, it retains all of the deficiencies of

² E.F. Johnson Company, by contrast, argues that the two Industrial pools proposed by National Association of Business and Educational Radio ("NABER") should be consolidated into one. Id. at 18. E.F. Johnson is of course a vendor, not an end user whose operations will be directly affected by whatever consolidation might ultimately be adopted. Moreover, consolidation of the two Industrial pools proposed by NABER would do violence to the long-established sharing patterns referenced above.

³ Telephone Maintenance Frequency Advisory Committee, which joined in ITA's comments, subcontracts its coordination work to ITA.

the original proposal. In particular, ITA would lump all industrial and land transportation users into one category and place all other users whose communications needs are "non-specialized" or "relatively routine" in a "Business/General Category" pool. Id. at 23-24.

There is no merit to the ITA proposal. While paying lip-service to compatibility, in fact it would eviscerate long-standing sharing patterns. The Land Transportation Services share relatively few frequencies with the Industrial Radio Services; and the Industrial Radio Services themselves do not even share most frequencies with each other.

No less troublesome is the utterly arbitrary and subjective nature of ITA's standard. It is a gross oversimplification to suggest that business users, non-profits, or government agencies as classes have "non-specialized," or "relatively routine" communications requirements. Conversely, it can not be said that the categories ITA would include in its "Private Industrial" pool have similar requirements such that their operation would be compatible. On the contrary, ITA's pool would embrace virtually every conceivable type of disparate user: How much do trucking or manufacturing operations have in common with Hollywood movie producers, for example? Amalgamating all of these entities into one pool will not only increase the risk of interference, but complicate the process of migration to narrower channel widths.

II. FREQUENCY ASSIGNMENT AND COORDINATION

The Coalition urges that, initially, frequencies assigned to consolidated pools be limited to new frequencies derived from narrowbanding. If consolidation is to work and work well, coordinators and users will need time to work out operational procedures including real-time, interactive databases and related procedures. Confining consolidation to the new frequencies will allow time for all concerned to "work out the bugs."⁴ This will be particularly important given the far-reaching changes in the private land mobile world which are likely to emerge from this docket: in light of such changes the Commission should minimize user disruption where that can be done -- as here -- without compromising basic regulatory goals.

The Coalition opposes ITA's proposal to allow any coordinator to coordinate applications for any of the pools and Services. Such an approach would aggravate the "coordinator shopping" problem which a number of parties have identified as an issue with consolidation (see, e.g., UTC Comments at 11-12; NABER Comments at 29-31) especially when coupled with ITA's companion proposal for notification-only to other coordinators (see id. at 26-27).⁵

⁴ The Coalition endorses the American Petroleum Institute ("API") suggestion that the Commission facilitate creation of a standard database. Id. at 16-17.

⁵ ITA suggests that notification be provided only to coordinators "primarily responsible" for out-of-service pools. Id. at 26-27. Nowhere does ITA define exactly which coordinators would be deemed "primary" in its view. Nor, for that matter, does ITA say anything about notification measures -- real-time or otherwise -- for coordinators of other Services within the applicant's "home"

Coordination could become a free-for-all with the consequences borne by users. Moreover, such an approach disregards Congressional sentiments endorsing the concept of representative coordinators.⁶

With respect to frequency assignment policies the Coalition notes the opposition among users and their associations to the notion that coordinators should apply vertical loading criteria.⁷ There is good reason for this. Most channels will remain shared: imposition of a vertical loading requirement would destroy the utility of many land mobile channels, particularly in congested areas. Hence, except perhaps for the smallest users with the lightest loading, coordinators should be allowed flexibility in coordinating new users so as to best fit the existing radio environment.

III. MIGRATION TO NARROWBAND TECHNOLOGIES

In its opening comments, the Coalition advised that while its members agree with the Commission's approach to increasing the capacity of the land mobile radio spectrum in the 150-174 and 421-512 MHz bands, primarily through the implementation of narrowband

pool. It is in the "home" pool where the risk of interference is particularly serious since pooled Services will share frequencies.

⁶ The value of representative coordinators is stressed by other commenters as well. See, e.g., NABER at 29-31; Associated Public Safety Communications Officers ("APCO") at 36-37.

⁷ See, e.g., UTC at 14; American Automobile Association, Inc. ("AAA") at 11, 19-21; Airborne Express at 2.

technologies, they disagreed with the Commission's specific proposals. They urged that the proposed 5 KHz channelization of the 72-76 and 150-174 MHz bands and the 6.25 KHz channelization of the 421-512 MHz band is premature and that the proposed requirement to narrowband existing systems by 1996 would be disruptive and very costly.

By far the majority of other commenters expressed the same concerns. See, for example, Comments filed by the Telecommunications Division of the State of California, pp. 7-8; the Association of American Railroads (AAR); [FCC's proposed plan ". . . imposes enormous burdens on PLMR licensees without a sufficient guarantee of spectrum efficiency benefits", pp. 23-25]; ITA, pp. 11-13; American Mobile Radio Association, (AMRA), pp. 4-5; APCO, pp. 7-8; API, pp. 5-6; NABER, pp. iii, 4; UTC, pp. v, 6-7, 19-22; Telecommunications Industry Association (TIA), pp. ii, 7-8, 12-13; Motorola, Inc.; E.F. Johnson Company, pp. ii, 4-5; Bendix/King, p.2.

Ericsson GE summarized the land mobile community's problems with the Commission's proposal as follows:

The Commission's first step transition proposal will result in (a) the expenditure by the PLMR industry of more than \$1.5 billion dollars to reduce transmitter deviation alone; (b) the loss of the use of equipment by the PLMR industry for a significant period of time to accomplish the necessary adjustments where possible; and (c) the likely creation of interference, reduced system performance, and other operating problems for existing 25 KHz or 30 KHz equipment which effectively makes pseudo-12.5 KHz channels unusable Id., p. 8.

The LMCC has estimated that there are 12 million base and

mobile radio units in the private land mobile radio services operating in the 150-174, 421-521 MHz bands. See LMCC Consensus Plan, p. 8. If so, and assuming that it would cost \$175 to \$275 per unit to narrowband existing equipment, as members of the Coalition have estimated⁸, the cost to land mobile licenses would be higher than Ericsson GE's estimates. It would be in the \$2-\$3 billion range. And, of course, existing land mobile licensees would not receive any benefits as a result; certainly not during the transition period. Instead, as Motorola highlighted in its Comments, ". . . the Commission's migration plan will cause harmful interference to millions of current land mobile users." See, Comments filed by Motorola, pp. 19-22.

Therefore, adoption of the Commission's proposed channelization plans as well as the proposed migration path to them would not be in the public interest.

The commenters, on the other hand, overwhelmingly supported the alternative UHF channelization and migration plan formulated by the industry at the Commission's invitation and submitted by LMCC on April 28, 1993. See, for example, Comments filed by International Municipal Signal Association (IMSA), International Association of Fire Chiefs, Inc. (IAFC); APCO, API, UTC, ITA, Public Safety Communications Council (PSCC), American Automobile Association (AAA and AMRA). The major radio equipment manufacturers also supported the substance of LMCC's Consensus

⁸ See Coalition Comments, p. 4.

Plan, including the proposed channelization as well as the migration plans. See Comments filed by Motorola, Inc., E.F. Johnson, GE Ericsson, Bendix/King and TIA. The LMCC Consensus Plan received such overwhelming support because it is based on currently available technology and would allow existing land mobile users a reasonable period of time within which to amortize their investment in existing land mobile systems and transition to new technologies. Therefore, the Coalition urges the Commission to adopt LMCC's recommended UHF approach.

At the same time, LMCC was unable to reach a consensus on a VHF migration plan. Instead, it proposed two options: Option A would look toward re-channelization -- and equipment replacement -- twice, first at 12.5 KHz and then at 6.25 KHz; Option B would look toward only one re-channelization -- and one change-out -- to 6.25 KHz in 10 years, that is, by the year 2004. The Coalition recommended that the Commission adopt LMCC's Option B for migration in the 150-174 MHz band. While a number of those who addressed this point may have supported Option A, Option B remains preferable for several important reasons. First, conversion to 6.25 KHz channels in 10 years is reasonable. Secondly, it would triple the number of available channels; and third, it would obviate the need for a second costly equipment changeout. By contrast, while Option A would also require costly equipment changeout by 2004, it would yield only 16% additional communications channels (about 90 frequencies) and would require, additional, if not complete, equipment changes later on. Option B is clearly to be preferred if

proper weight is given to minimizing added costs and disruption to users.

Nevertheless, if the Commission is of the view that the record is not sufficiently developed on this point, another option is available: postpone a final decision on the channelization of the 150-174 MHz band until there has been substantial operational experience with narrowband operation in the 220-222 MHz band. Several commenters have suggested this approach. See, for example, Comments filed by AAR, p. 29, and AMRA, p.4, NABER, p. 12. The Commission could re-examine this issue in a further rule making proceeding in the 1998-2000 time frame. Meanwhile, the Commission should begin type-accepting 150-174 MHz radio equipment with emission bandwidths of 12.5 KHz or narrower beginning in 1996. The Commission should also begin authorizing 12.5 and 6.25 KHz systems in that band on a voluntary, coordinated basis so that the transition to narrowband can begin and operational experience can be gained.

Finally, the Coalition emphasizes that equipment changeout, as such, need not and should not be mandated. Instead, existing systems should be grandfathered indefinitely after 2004, but on a secondary, non-interference basis. Such a policy would allow licensees in rural areas, where frequency congestion may not exist, to continue operating indefinitely without equipment changes until and unless interference occurs.

IV. HEIGHT/POWER LIMITS

In its opening comments, the Coalition supported the alternative proposals of LMCC for assigning height/power limits to land mobile radio systems. With the exception of the Association of Maximum Service Telecasters, those who addressed this issue overwhelmingly supported the LMCC alternative. See, for example, Comments filed by the Weyerhaeuser Company, p. 3; ITA, pp. 15, 16, 17; API, pp. 8-9, 23-24; AAR, pp. 36-38; APCO, pp. 29-30; ASHTO, pp. 6-7; AMRA, pp. 5-6; UTC, pp. 20, 40-46; IMSA, pp. ii, 5; TIA, pp. ii, 18-19; Motorola, pp. 29-30; E.F. Johnson Company, p. 20.

The Coalition believes that the LMCC recommendations are a good compromise in that they balance reasonably well the Commission's spectrum conservation objectives and legitimate coverage requirements of land mobile licensees. For example, the LMCC plan would authorize coordinators to request applicants to justify what might appear to be excessive coverage; this would help restrict overpower operations. At the same time the LMCC proposal would provide an "escape clause" for those licensees who would need power or height greater than the table due to unusual propagation problems (i.e., coverage within factories).

By contrast, the height/power limits proposed in the Notice are far too restrictive and do not reflect the coverage requirements of land mobile users. In sum, the LMCC proposals are reasonable, have the overwhelming support of the land mobile community, and would go a long way towards eliminating overpower operations. Therefore, the Coalition urges their adoption.

Members of the Commission's staff have raised the question as to how the exclusive use overlay (EUO) program would be implemented in an environment, such as that reflected by LMCC's coverage and co-channel separation tables, in which coverage areas would vary from two to 47 miles. The short answer is that the EUO program should be modified to fit that environment. In fashioning an EUO program, the Commission must take into account the true coverage requirements of land mobile users, rather than establish the program based on pre-conceived but unrealistic premises. The fact is that the coverage requirements of land mobile users vary greatly. To be responsive, the Commission's EUO program must reflect that fact.

An EUO program can be implemented in an environment of varied coverage requirements, although the process may be more demanding than under the Commission's simplistic proposal. Exclusive assignments and requests for EUO concurrences would be based on the protection criteria (18 dB) incorporated into LMCC's co-channel separation tables. In other words, EUO applicants will have to provide the prescribed co-channel protection to existing co-channel licensees in the area or obtain their concurrence. They, in turn, would be entitled to the same protection, or may elect to "live" with less protection, such as 10 dB. The protection level chosen would define the degree of "exclusivity" EUO applicants would be entitled to maintain.

In other words, while the Commission's EUO proposed program might appear easier to establish and administer, it would not

succeed: it does not reflect the actual land mobile communications environment nor would it accommodate the varied communications requirements of users, especially the requirements served by private communications systems.

V. FREQUENCY ASSIGNMENT POLICIES

(a) Exclusivity

The Coalition supported the Commission's proposal to assign frequencies in the 150-174 and 450-470 MHz bands on an "exclusive", protected, basis⁹ and urged the Commission to adopt a more flexible approach for making exclusive assignments. The Coalition recommended that such assignments should be made, first, in accordance with the co-channel separation tables proposed by LMCC in its Consensus Plan, rather than pursuant to the 50-mile channel separation proposed in the Notice. The Coalition also recommended more flexible eligibility criteria for exclusive assignments. It

⁹ The Commission has proposed to designate specific frequencies in the 150-170 and in the 450-470 MHz bands as available for exclusive assignments and others for shared use. The Coalition in its opening comments recommended against designating frequencies for shared or for exclusive use. That matter was not discussed extensively in the opening comments. Nevertheless, the Coalition continues to believe that such designation is not

was suggested that, in addition to loading, safety or system requirements should be accepted as adequate justifications for exclusive assignments.

Practically all those who addressed the issue recommended against adoption of the proposed 50-mile channel re-use rule. See, for example, Comments filed by the Weyerhaeuser Company, p. 4, ITA, p. 18, API;, p. 11; AMRA, p.8; UTC, pp. vi, 49. While the eligibility criteria for exclusive assignments were not discussed extensively, the Coalition believes that the criteria it has recommended have widespread support as well. It is recognized that desirable advanced technology systems such as trunking and TDMA require exclusive frequency assignments. It is also widely recognized that systems used primarily for safety also require interference-free assignments. See, for example, comments filed by API, pp. 11-12; AAR, p. 16; AAA, p. iv. Therefore, the Coalition urges that provision be made for exclusive assignments not only on the basis of loading but also for safety systems and for systems, such as, trunked and TDMA that by their nature require exclusive assignments.

(b) "Stacking" narrow channels

Since the filing of the opening comments, particularly during the two informal conferences which the Private Radio Bureau held with representatives of users and equipment manufacturers, there has been much discussion about the need to provide for aggregating ("stacking") two or more narrow channels in order to accommodate systems and operations requiring wider channels. "Wide" channels

are said to be required for TDMA and for other digital operations.

The Coalition agrees that wider channels should be available and that frequency "stacking" is an appropriate method for assembling together such channels. To be able to stack two or more narrow channels efficiently, however, it is imperative that the new channels (the "splits") created by narrowbanding be kept within the service or services to which the primary channels are now allocated. This would provide the contiguous spectrum that would be needed in each service or service pool for spectrum efficient systems such as TDMA.¹⁰ This requirement is another compelling reasons for grouping services which historically have shared most of their frequencies compatibly, at least of the Commission should decide after consolidation at all.

VI. 72-76 MHz BAND

The Radio Control Manufacturers Association ("RCMA") argues that radio control devices used by model airplane hobbyists and the like should be given primary status in the 72 MHz band based on a 7.5 KHz spacing plan. The RCMA proposal is deficient.

First, there has not been adequate notice of this plan such

¹⁰ Keeping the resulting splits in the service or services to which the primary frequencies are now allocated would obviate the need for the massive, but wholly needless, frequency reallocation NABER contemplates in its proposal for allocation of contiguous blocks of spectrum for each user pool. Keeping the splits in the same service as the primaries would make it possible to stack several narrow channels and aggregate at least 25 contiguous kilohertz which would be more than enough to accommodate such systems as TDMA.

that interested parties may bring their concerns to the Commission's attention. See 5 U.S.C.A. § 553(b). For this reason alone the RCMA proposal should be rejected: rather, as the

headset from a hobby unit is far more likely than the reverse and could have serious safety consequences.

Fourth and last, RCMA's 7.5 KHz spacing plan is highly questionable. State of the art voices, data, and control transmitters operated in the 72-76 MHz by members of the Coalition require bandwidths in the order of 12.5 to 15 KHz. It is uncertain at this time whether control systems can be operated with the high reliability required within the narrow channels proposed by the Commission or by RCMA.

For all these reasons RCMA's proposals should be rejected or deferred to a separate proceeding.

VII. INNOVATIVE SHARED OPERATIONS

The Coalition notes the practically universal opposition to the proposal to allocate 258 frequency pairs to so-called innovative shared operations and urges the Commission not to consider it further.

VIII. OTHER MATTERS

These Reply Comments address some of the more important issues raised by the Commenters in this proceeding. Some of the other issues addressed in the Coalition's opening comments are not discussed further here. This omission should not be taken as an indication that the Coalition has lost interest in those issues. Far from it. Mobile relay, paging, wide area operations, policies for assigning additional frequencies, continued availability of the

frequencies 152.480, 154.625, 157.740, and 158.460 MHz in the Forest Products Radio Service and itinerant operations continue to be of vital interest to members of the Coalition. Therefore, the Commission should consider the Coalition's comments on these issues.

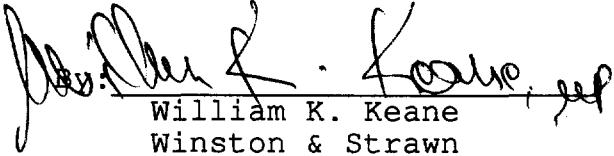
IX. CONCLUSION

The Coalition urges the Commission to move forward in this important proceeding and establish the groundwork for the implementation of developing spectrum efficient technologies in the land mobile radio services. However, the Commission is urged to

follow the path recommended overwhelmingly by the land mobile user community and by many, if not most, of the established land mobile equipment manufacturers.

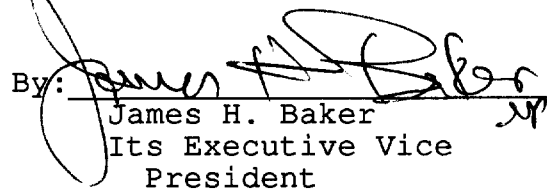
Respectfully submitted,

MANUFACTURERS RADIO FREQUENCY
ADVISORY COMMITTEE, INC.

By:  William K. Keane
Winston & Strawn

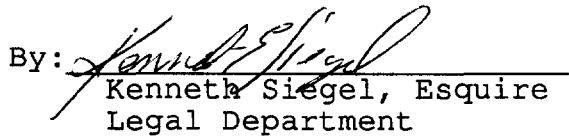
1400 L Street, N.W.
Washington, D.C. 20005-3502
(202) 371-5700
Its Attorney

FOREST INDUSTRIES
TELECOMMUNICATIONS

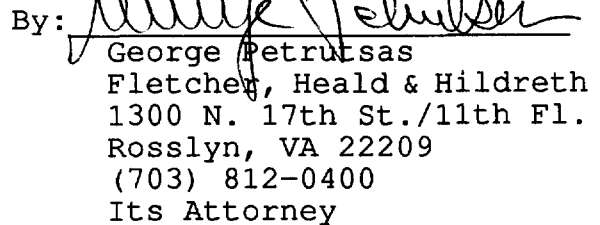
By:  James H. Baker
Its Executive Vice
President

871 Country Club Road
Suite A
Eugene, OR 97401
(503) 485-8441

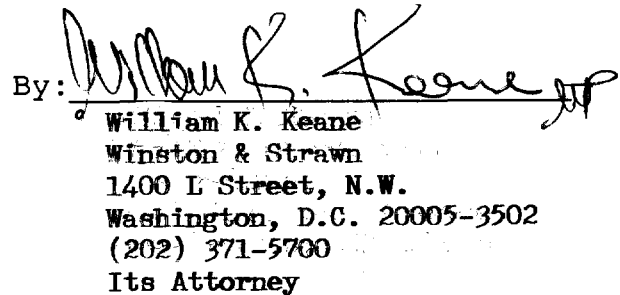
AMERICAN TRUCKING ASSOCIATIONS,
INC.

By:  Kenneth Siegel, Esquire
Legal Department

2200 Mill Road
Alexandria, VA 22314
Its Attorney

By:  George Petrusas
Fletcher, Heald & Hildreth
1300 N. 17th St./11th Fl.
Rosslyn, VA 22209
(703) 812-0400
Its Attorney

INTERNATIONAL TAXICAB AND LIVERY
ASSOCIATION

By:  William K. Keane
Winston & Strawn
1400 L Street, N.W.
Washington, D.C. 20005-3502
(202) 371-5700
Its Attorney

Date: July 30, 1993